

Letter

EOSINOPHILIA IN CONJUNCTIVAL TEAR FLUID AMONG PATIENTS WITH POLLEN ALLERGY

Seasonal allergic conjunctivitis (SAC) is the most prevalent type of ocular allergy, affecting up to 20% of the general population.¹ The total symptoms and signs, represented by composite scores, are the main clinical parameters in most of the studies on allergic conjunctivitis.² The objective evaluation of allergic ocular disorders (eg, through cellular analysis of tear fluid) is rarely performed. Although the conjunctival provocation test (CPT) has been used to confirm the ocular allergy diagnosis in routine diagnostics of SAC, the evaluation of clinical symptoms and skin prick tests are used most often.³ The cytologic examination of tear fluid is rarely performed probably because of difficulties with obtaining adequate quantity of tear fluid. The aim of the study was to evaluate cellular changes in the tears of atopic patients examined during the pollen season and out of the season.

The study group comprised 30 patients (19 women and 11 men) aged 21 to 61 years (mean [SD] age, 46.5 [10.6] years) with ocular allergy to grass or tree pollens. The patients underwent physical examination. Clinical signs of ocular allergy were evaluated using a standardized grading system for measurement of signs and symptoms of allergic conjunctivitis described by Abelson et al⁴; the redness, lid swelling, chemosis, tearing, and itching were evaluated. Skin prick tests (Allergopharma, Hamburg, Germany) to common allergens were performed in all patients. Moreover, conjunctival tear fluid was collected (during the pollen season from March to May and out of the season during November and December) by microcapillary tubes (Bayer, Tarrytown, New York) and spread on glass slides, air-dried, and next stained with May-Grunwald-Giemsa dye. The Regional Bioethical

Committee approved the study protocol. All of the participants gave their informed consent before the study. All patients reported seasonal ocular symptoms (hyperemia, chemosis, itching, and/or lid edema) during pollen season (from March to May), had positive skin prick test results to tree or grass pollens, and had their diagnosis of SAC confirmed by an ophthalmologist. The study participants did not receive any systemic or local medication during the trial. In addition, 18 patients (60%) had rhinitis, 14 (46%) had cough, 12 (40%) had dyspnea, and 10 (30%) had skin symptoms. The mean (SD) duration of ocular symptoms was 6.6 (3.9) years. The duration of allergy symptoms other than ocular (ie, nasal) asthma was not measured during the study.

The mean (SD) total symptom score on the Abelson scale was 3 or higher in all patients during pollen season (7.13 [2.76] vs 0.57 [0.82] after the season). The cellular analysis of tear fluid among examined patients revealed a mean (SD) eosinophil count of 10.33% (5.67%) in tears during pollen season and 0.67% (1.06%) out of pollen season. In all patients the eosinophil count in the tear fluid was at least 5% during the symptomatic period (Fig 1). To our knowledge, this is the first study describing eosinophil infiltration in conjunctiva as the effect of the airborne exposure to allergen. So far, only the CPT was performed to demonstrate allergic responses in ocular allergy.^{5,6} In our study the significant eosinophilia in tears among patients with SAC examined during pollen season was demonstrated and the cellular changes in the tears were found even though only airborne exposure occurred. In addition, the varied level of exposure was expected because the time spent outdoors and indoors was probably different among examined patients. The range of pollen counts during the season unfortunately was not measured. Dart et al⁷ used conjunctival cytologic testing to show eosinophils in 25% of patients with SAC. However, in the study by Bonini et al,⁸ there was no significant increase in eosinophils after the CPT was performed when the lower allergen doses were used. In the other study, the cytologic changes in tear fluid were found in all allergen

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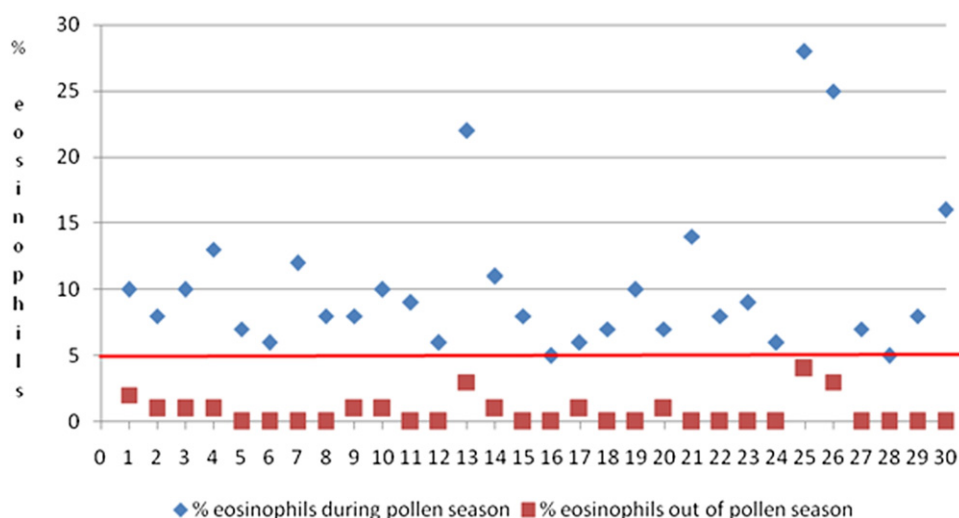


Figure 1. The individual results of eosinophil counts in the tear fluid among 30 examined patients with seasonal allergic conjunctivitis estimated during and out of pollen season.

doses, whereas eye symptoms were observed only after the CPT was performed with high allergen dose.⁵

In conclusion, these results showed that significant eosinophilia (>5%) in tears is detectable among patients with SAC during pollen season (only after airborne exposure). The cellular analysis of tear fluid is a safe and specific method applicable to differential diagnostics in ocular allergy.

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